

Amendments to the Claims

This listing of the claims replaces all prior versions and listings of the claims in the application.

Listing of Claims:

Claims 1-10 (cancelled)

11. (currently amended) A method for generating a mutagenized polynucleotide comprising:
a) annealing a poly-binding nucleic acid strand to two or more mono-binding nucleic acid strands
to generate an annealed heteromeric complex of nucleic acid strands, wherein said annealed
complex comprises 10, 100, ~~1000~~ 1,000, ~~10000~~ 10,000, 100,000 or 1,000,000 bases [.]];
b) subjecting unhybridized single-stranded ends of the annealed mono-binding nucleic acid
strands in the heteromeric complex to an exonuclease treatment that degrades said unhybridized
ends; and
c) subjecting the annealed heteromeric complex to polymerase-based extension.

12. (currently amended) A method for generating a mutagenized polynucleotide comprising:
a) annealing a poly-binding nucleic acid strand to two or more mono-binding nucleic acid strands
to generate an annealed heteromeric complex of nucleic acid strands, wherein the mono-binding
strands and/or the poly-binding strands are generated from a template progenitor molecule by
synthesis, fragmentation, isolation or denaturation [.] ;
b) subjecting unhybridized single-stranded ends of the annealed mono-binding nucleic acid
strands in the heteromeric complex to an exonuclease treatment that degrades said unhybridized
ends; and
c) subjecting the annealed heteromeric complex to polymerase-based extension.

13. (currently amended) A method for generating a mutagenized polynucleotide comprising:

- a) annealing a poly-binding nucleic acid strand to two or more mono-binding nucleic acid strands to generate an annealed heteromeric complex of nucleic acid strands, wherein the mono-binding strands and/or the poly-binding strands are derived from a library of clones generated from nucleic acid from a mixed population of organisms [(.)] ;
- b) subjecting unhybridized single-stranded ends of the annealed mono-binding nucleic acid strands in the heteromeric complex to an exonuclease treatment that degrades said unhybridized ends; and
- c) subjecting the annealed heteromeric complex to polymerase-based extension.

14. (original) The method of claim 13, wherein the organisms are microorganisms.

15. (cancelled)

16. (original) The method of claim 14, wherein the microorganisms are uncultured microorganism.

17. (original) The method of claim 14, wherein the microorganisms are from an environmental sample.

18. (new) The method of claim 11, further comprising ligating the annealed and extended heteromeric complex.

19. (new) The method of claim 12, further comprising ligating the annealed and extended heteromeric complex.

20. (new) The method of claim 13, further comprising ligating the annealed and extended heteromeric complex.

21. (new) A method for generating a mutagenized polynucleotide comprising:

- a) annealing a poly-binding nucleic acid strand to two or more mono-binding nucleic acid strands to generate an annealed heteromeric complex of nucleic acid strands, wherein the mono-binding strands and/or the poly-binding strands are derived from a library of clones generated from nucleic acid from a mixed population of uncultured microorganisms from an environmental sample;
- b) subjecting unhybridized single-stranded ends of the annealed mono-binding nucleic acid strands in the heteromeric complex to an exonuclease treatment that degrades said unhybridized ends;
- c) subjecting the annealed heteromeric complex to polymerase-based extension; and
- d) ligating the annealed and extended heteromeric complex.

22. (new) The method of claim 19, wherein the mono-binding strands and/or the poly-binding strands are generated from a template progenitor molecule by synthesis, fragmentation, isolation or denaturation.